

CHARGE NUMBER: 2501  
PROJECT TITLE: Smoke Chemistry  
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#### NON-COMBUSTABLE SMOKING ARTICLE

Preliminary gc experiments indicate that a mixture of thiazoles, an oxazole and a tobacco extract all diminish in delivery 10 fold in 10 puffs. As would be expected the more volatile components are reduced faster relative to the less volatile ones. The delivery vehicle was quartz wood. Due to the large RTD, fine mesh bonded phase silica gel was not satisfactory.

#### PROMPT GAMMA ANALYSIS

Samples of 2R1 tobacco filler and smoke condensate were analyzed by prompt gamma-ray analysis. The elements H, B, C, N and P which cannot be analyzed by neutron activation analysis can be detected by prompt gamma. The following data was obtained for percentage delivery to condensate calculated from the expression.

$$\% \text{ delivery} = 100 \frac{\text{condensate} \times 0.03}{\text{tobacco} \times 0.73}$$

Where 0.03 is the average condensate delivery to mainstream smoke and 0.73 is the fraction of cigarette burned.

#### CONDENSATE DELIVERY

ELEMENT	TOBACCO	CONDENSATE	% DELIVERY
B	30 ppm	1.2 ppm	0.16
N	2.3%	0.6%	1.1
Si	2%	0.4%	0.4
S	0.6%	0.3%	2.0
Cl	0.7%	0.2%	1.2
K	3.6%	0.2%	0.2

#### MASS SPECTROMETRY

Pyrolysis/gc/ms was carried out on a menthol release compound at 300°C and 600°C. At both temperatures menthol and menthene were identified.<sup>1</sup>

Yucca extract was analyzed by pyrolysis/gc/ms. The volatile products at both temperatures were of very low yield considering the amount of material (1-2mg) pyrolyzed. The results were documented in a recent memo.<sup>2</sup>

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References:

1. Naworal, J.; Greene, F., Pyrolysis GC/MS Analysis of M-1005. Memo to Roger Comes, November 27, 1985.
2. Naworal, J.; Greene, F., Pyrolysis GC/MS of a Yucca Extract. Memo to Dr. J. L. Charles, December 2, 1985.

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